

REMARKS

The Official Action dated October 29, 2007 has been carefully considered. Accordingly, the changes presented herewith, taken with the following remarks, are believed sufficient to place the present application in condition for allowance. Reconsideration is respectfully requested.

By the present Amendment, claim 1 has been amended for clarity. Support for the Amendment may be found in the specification and claims as originally filed. Since this change does not involve the introduction of new matter entry is believed to be in order and is respectfully requested.

In the Official Action, claims 1, 4-6, 10, 14-16, 20 and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sussman et al. (US 5,686,960) in view of Miyamoto (US-PGPUB 2002/0175986). The Examiner conceded that Sussman et al. fail to teach, disclose or suggest determining the concentration ratio for one of a plurality of tiles. The Examiner asserted that Miyamoto teaches an image forming process and image forming apparatus where a concentration ratio of liquid image forming solutions is determined. The Examiner asserted that at the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the histogram equalization method of processing images, system, and computer program of Sussman et al. with the concentration ratio of liquid image forming solutions used in a printing method and apparatus of Miyamoto to implement the subject invention. The Examiner asserted that the motivation to combine the teachings of Sussman et al. and Miyamoto was to further improve the image quality in the forgoing image forming method.

However, as will be set forth in detail below, it is submitted that the methods, systems, and computer readable medium as defined by claims 1-24 of the subject application are nonobvious over and patentably distinguishable from Sussman et al. in view of Miyamoto.

Furthermore, Miyamoto is non-analogous art and, as such, cannot serve as the basis for a rejection. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

References relied upon to support a rejection under 35 U.S.C. §103 must provide an enabling disclosure, i.e., they must place the claimed invention in the possession of the public. *In re Payne*, 203 U.S.P.Q. 245 (CCPA 1979). Furthermore, to establish prima facie obviousness of the claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974).

Independent claims 1, 10, 20, and 24 of the subject application recite the limitation of "determining a concentration ratio for one of a plurality of tiles." The concentration ratio (CR) determines the smoothness of an image or portion of an image and is defined in terms of the population (P) (e.g., a number of pixels) of each level (L) of a histogram such that:

$$CR = \frac{\left(\sum_L P_L \right)^2}{\left(\sum_L P_L^2 \right)}$$

Miyamoto does not teach or suggest a concentration ratio of an image that determines the smoothness of an image. Indeed, Miyamoto does not contain any reference or teaching directed to image processing or the use of a concentration ratio for image processing. Instead, Miyamoto teaches an image forming process (e.g., a method of physically printing an image on a medium) and a related apparatus. Paragraph [0030], lines 8-10 of Miyamoto referenced by the Examiner specifically recites that "it is preferred that a ratio of a concentration (percent by mass) of the liquid of "high concentration" to the liquid of "low concentration" is from 1.2:1 to 10:1." The terms "high concentration" and "low concentration," as used in Miyamoto refer to the chemical concentration (percent by mass) of liquid image forming solutions which are deposited (printed)

on a medium to form an image. Miyamoto, paragraph [0029], lines 1-8. The concentration ratio CR taught in the subject application is patentably distinguishable from the chemical concentration ratio of image forming solutions as disclosed in Miyamoto. Moreover, the concentration ratio of an image forming solution of high concentration to an image forming solution of low concentration does not enable determining a concentration ratio for one of a plurality of tiles. As such, Miyamoto fails to disclose the limitation of determining a concentration ratio for one of a plurality of tiles as taught and disclosed in the subject application.

Because neither Miyamoto nor Sussman et al. teach, suggest, or otherwise disclose determining a concentration ratio for one of a plurality of tiles, the references do not teach every limitation of independent claims 1, 10, 20, and 24 of the subject application. Accordingly, Applicant asserts that claims 1, 10, 20, and 24 are non-obvious over Sussman et al. in view of Miyamoto and respectfully requests reconsideration of the rejections.

Based on the foregoing arguments, it is believed that claims 2-9 that depend from independent claim 1, claims 11-19 that depend from independent claim 10, and claims 21 and 22 that depend from independent claim 20, are in proper condition for allowance.

Moreover, the Miyamoto reference is non-analogous art which cannot form a basis for rejecting the subject application. In order for an Examiner to rely on a reference in rejecting an applicant's invention, "the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); see also *In re Deminiski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); and *State Contracting & Eng'g Corp. v. Condotta America, Inc.*, 346 F.3d 1057, 1069, 68 USPQ2d 1481, 1490 (Fed. Cir. 2003) ("where the general scope of a reference is outside the pertinent field of endeavor, the reference

may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved."). The subject application discloses a method and image processing system for reducing artifacts in images caused by image processing. Miyamoto is related to a method and apparatus for forming (e.g., printing) an image on a medium using image forming solutions having different concentration ratios. Miyamoto does not contain any teaching or reference to *image processing* or reducing artifacts in images due to image processing. As such, Miyamoto is not relevant to the particular problem with which the subject application is involved. Accordingly, Miyamoto is non-analogous art that cannot be used as a basis for rejecting the subject application. Reconsideration of the rejections based on Miyamoto is respectfully requested.

In the Official Action, claims 3 and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sussman et al. and Miyamoto, as applied to claims 1 and 10, and further in view of Sawada et al. (US 7,023,582). The Examiner conceded that Sussman et al. and Miyamoto fail to teach creating a first output including creating a first lookup table, and creating the second output including creating a second lookup table as recited in claims 3 and 13. The Examiner asserted that Sawada et al. teach an image processing apparatus, where the first output is created including creating a first lookup table and a second output is created including creating a second lookup table. As motivation for combining Sawada et al. with Sussman et al. and Miyamoto, the Examiner asserted that the features of Sawada et al. provide an image processing apparatus to realize the reproduction of a black character, and elimination of instability of dark color reproduction can be realized.

However, as will be set forth in detail below, it is submitted that the methods and system as defined by claims 3 and 13 are nonobvious over and patentably distinguishable from Sussman

et al. and Miyamoto further in view of Sawada et al. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

References relied upon to support a rejection under 35 U.S.C. §103 must provide an enabling disclosure, i.e., they must place the claimed invention in the possession of the public. *In re Payne*, 203 U.S.P.Q. 245 (CCPA 1979). Furthermore, to establish prima facie obviousness of the claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974).

As noted hereinabove, with respect to independent claims 1 and 10, from which claims 3 and 13 depend, the combination of Sussman et al. with Miyamoto does not teach or suggest each limitation of the claimed subject matter and, as such, the combination of Sussman et al. with Miyamoto does not place the claimed subject matter in the possession of the public. Specifically, neither Sussman et al. nor Miyamoto teach or suggest the use of a concentration ratio CR as defined in the subject application. Moreover, Miyamoto is non-analogous art that may not form a basis for rejecting the claimed subject matter.

Sawada et al. disclose an image processing apparatus and, more particularly, an image processing apparatus for generating an address based on minimum and maximum values among signals indicating the three primary colors. Sawada et al. do not teach the use of a concentration ratio as defined in the subject application.

The deficiencies in the combination of Sussman et al. and Miyamoto are not overcome by further combination with Sawada et al. Moreover, Sawada et al., alone or in combination with Sussman et al. and Miyamoto, fail to teach all the limitations of the claimed invention. By way of example, neither Sawada et al., Miyamoto nor Sussman et al. teach the limitation of a concentration ratio as claimed and defined in the subject application. Accordingly, it is

submitted that the method claimed in the subject application is patentably distinguishable over the combination of Sussman et al. and Miyamoto further in view of Sawada et al. whereby the rejection under 35 U.S.C. § 103 has been overcome. Reconsideration is respectfully requested.

In the Official Action, claims 11 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sussman et al. and Miyamoto, as applied to claims 10 and 20, and further in view of Hannah (US 5,859,710). The Examiner conceded that Sussman et al. do not disclose a system where the printer is coupled to the processor as described in claims 11 and 21. The Examiner asserted that Hannah teaches a digital copying system using a high-speed data bus, without the use of data buffer, where the printer is coupled to the processor. As motivation for combining Hannah with Sussman et al. and Miyamoto, the Examiner asserted that the features of Hannah would enable the transmission of the digital image from the external processor to the printer faster to suit the needs of print engine to print the object in real time.

However, as will be set forth in detail below, it is submitted that the methods, system and computer readable medium as defined by claims 11 and 21 are nonobvious over and patentably distinguishable from Sussman et al. and Miyamoto further in view of Hannah. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

Hannah teaches a copier for rendering an image of an object onto a physical medium. The copier includes a scanner, a printer and an external processor. Hannah does not teach using a concentration ratio CR as defined in the subject application.

References relied upon to support a rejection under 35 U.S.C. §103 must provide an enabling disclosure, i.e., they must place the claimed invention in the possession of the public. *In re Payne*, 203 U.S.P.Q. 245 (CCPA 1979). Furthermore, to establish prima facie obviousness

of the claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974).

As noted hereinabove with respect to independent claims 10 and 20, from which claims 11 and 21 depend, the combination of Sussman et al. with Miyamoto do not teach or suggest each limitation of the claimed subject matter and, accordingly, the combination of references does not enable the claimed subject matter. Specifically, neither Sussman et al. nor Miyamoto teach or suggest the use of a concentration ratio CR as defined in the subject application. Moreover, Miyamoto is non-analogous art that may not form a basis for rejecting the claimed subject matter.

The deficiencies in the combination of Sussman et al. and Miyamoto are not overcome by further combination with Hannah. Moreover, Hannah, alone or in combination with Sussman et al. and Miyamoto, fail to teach all the limitations of the claimed invention. By way of example, neither Hannah, Miyamoto nor Sussman et al. teach the limitation of a concentration ratio as claimed and defined in the subject application. Accordingly, it is submitted that the method claimed in the subject application is patentably distinguishable over the combination of Sussman et al. and Miyamoto further in view of Hannah whereby the rejection under 35 U.S.C. § 103 has been overcome. Reconsideration is respectfully requested.

In the Official Action, claims 12 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sussman et al. and Miyamoto, as applied to claims 10, and 20, and further in view of Safai (US-PGPUB 2003/0048361). The Examiner conceded that Sussman et al. do not disclose a system where the image capture device is coupled to the processor as described in claims 12 and 22. The Examiner asserted that Safai teaches a digital camera where the digital camera includes an imaging unit connected to the digital camera. As motivation for combining

Safai with Sussman et al. and Miyamoto, the Examiner asserted that it would have been obvious to combine the teachings of Safai with the system of Sussman et al. in order to have available components that can be used by a variety of digital camera manufacturers, regardless of their specific image sensor or color interpolation scheme.

However, as will be set forth in detail below, it is submitted that the methods, system and computer readable medium as defined by claims 12 and 22 are nonobvious over and patentably distinguishable from Sussman et al. and Miyamoto further in view of Safai. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

Safai teaches a digital camera and methods for using a digital camera. The copier includes a programmable processor for configuring and providing for the flexible operation of the camera. Safai does not teach using a concentration ratio CR as defined in the subject application.

References relied upon to support a rejection under 35 U.S.C. §103 must provide an enabling disclosure, i.e., they must place the claimed invention in the possession of the public. *In re Payne*, 203 U.S.P.Q. 245 (CCPA 1979). Furthermore, to establish prima facie obviousness of the claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974).

As noted hereinabove with respect to independent claims 10 and 20, from which claims 12 and 22 depend, the combination of Sussman et al. with Miyamoto does not teach or suggest each limitation of the claimed subject matter and, accordingly, the combination of references does not enable the claimed subject matter. Specifically, neither Sussman et al. nor Miyamoto teach or suggest the use of a concentration ratio CR as defined in the subject application. Moreover, Miyamoto is non-analogous art that may not form a basis for rejecting the claimed subject matter.

The deficiencies in the combination of Sussman et al. and Miyamoto are not overcome by further combination with Safai. Moreover, Safai, alone or in combination with Sussman et al. and Miyamoto, fail to teach all the limitations of the claimed invention. By way of example, neither Safai, Miyamoto nor Sussman et al. teach the limitation of a concentration ratio as claimed and defined in the subject application. Accordingly, it is submitted that the method claimed in the subject application is patentably distinguishable over the combination of Sussman et al. and Miyamoto further in view of Safai whereby the rejection under 35 U.S.C. § 103 has been overcome. Reconsideration is respectfully requested.

In the Official Action, claim 23 was rejected under 35 U.S.C. §103(a) as being unpatentable over Paik et al. (US 6,163,621) in view of Miyamoto (US-PGPUB 2002/0175986). The Examiner asserted that Paik et al. discloses a method of processing an image, the method comprising: capturing an image of an object; and applying controlled, equalization to an image generated by the image capture device. The Examiner conceded that Paik et al. do not explicitly mention that the controlled equalization uses a concentration ratio. The Examiner relies on Miyamoto for supplying this teaching.

However, as will be set forth in detail below, it is submitted that the method defined by claim 23 is nonobvious over and patentably distinguishable from Paik et al. in view of Miyamoto. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

Paik et al. teach a method of processing an image comprising capturing an image of an object and applying controlled equalization to an image generated by the image capture device. Paik et al. do not teach using a concentration ratio CR as defined in the subject application.

References relied upon to support a rejection under 35 U.S.C. §103 must provide an enabling disclosure, i.e., they must place the claimed invention in the possession of the public.

In re Payne, 203 U.S.P.Q. 245 (CCPA 1979). Furthermore, to establish prima facie obviousness of the claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974).

As noted hereinabove with respect to independent claims 1, 10 and 20, Miyamoto does not teach or suggest each limitation of the claimed subject matter. More particularly, Miyamoto does not teach or suggest the use of a concentration ratio CR as defined in the subject application. The examiner has acknowledged that Paik et al. do not teach this limitation. Accordingly, the combination of references does not enable the claimed subject matter. Moreover, Miyamoto is non-analogous art that may not form a basis for rejecting the claimed subject matter. Accordingly, it is submitted that the method claimed in the subject application is patentably distinguishable over the combination of Paik et al. and Miyamoto whereby the rejection under 35 U.S.C. § 103 has been overcome. Reconsideration is respectfully requested.

Finally, Applicants appreciate the Examiner's indication of allowable subject matter in claims 2, 7-9 and 17-19. Accordingly, the changes presented herewith taken with the above remarks are believed to be sufficient to place the claims in condition for allowance.

It is believed that the above represents a complete response to the Examiner's rejections under 35 U.S.C. §103 and places the present application in condition for allowance. Reconsideration and an early allowance are requested. Please charge any additional fees required in connection with the present communication, or credit any overpayment, to Deposit Account No. 04-1133.

Respectfully submitted,

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